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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#16 Response  
7/23/03  
[Signature]

In re application of : Confirmation No. 5973  
Graham John BRATTON et al. : Docket No. 00263/SP/VC/LS/4485 US  
Serial No. 09/806,790 : Group Art Unit 1723  
Filed April 2, 2001 : Examiner Krishnan S. Menon  
MEMBRANE :

**RESPONSE**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

THE COMMISSIONER IS AUTHORIZED  
TO CHARGE ANY DEFICIENCY IN THE  
FEE FOR THIS PAPER TO DEPOSIT  
ACCOUNT NO. 23-0975.

Sir:

Responsive to the Office Action of March 13, 2003, the time for responding thereto being extended for one month in accordance with a Petition for Extension of Time submitted herewith, Applicants submit the following remarks in support of the patentability of the presently claimed invention over the references applied by the Examiner in rejecting the claims. Further and favorable reconsideration is respectfully requested in view of these remarks.

Thus, the rejection of claims 16-23 under 35 U.S.C. §103(a) as being unpatentable over EP 0 659 469 A2 is respectfully traversed.

The only independent claims in the application are claims 16 and 20, both of which require that the ceramic monolith has an outer diameter of 20-25 mm.

On the other hand, as Applicants have previously noted, the EP '469 reference discloses that the outside diameter of the cylinder (which has a plurality of holes arranged parallel in the axial direction) is 30-100 mm. Applicants respectfully submit that there is no disclosure in the reference which would lead one of ordinary skill in the art to modify the outside diameter of the cylinder to a diameter within the range of 20-25 mm as required in the presently claimed invention.

Toward the bottom of page 2 of the Office Action, the Examiner states that EP '469 discloses a tubular monolith membrane having a plurality of conduits, zeolites formed inside, ID 2-12 mm, and OD up to 10 mm and 30-100 mm, referring to the disclosure at page 3, lines 3-7 of the reference.

However, to the contrary, for the embodiment involving the cylinder, i.e. having a plurality of conduits (as opposed to the embodiment involving the "pipe"), the OD is only recited as 30-100 mm.

Thus, the disclosure at page 3, lines 3-7 of EP '469 states:

No restrictions are imposed on the shape of the porous support; however, the one used for the pervaporation or vapor permeation should be in the form of pipe, 20-100 cm long, about 10 mm in outside diameter, and 0.2 mm to several mm in thickness or in the form of cylinder, 20-100 cm long, 30-100 mm in the outside diameter, and 0.2 mm to several mm in thickness, having a plurality of holes, 2-12 mm in inside diameters, arranged parallel in the axial direction. (Emphasis added)

The Examiner's description of the reference (at the bottom of page 2 of the Office Action) is thus inconsistent with this disclosure of the reference, since the 10 mm outside diameter applies only to the pipe embodiment, not to the cylinder, where in the latter the outside diameter is 30-100 mm.

In this regard, Applicants note that in the second half of page 4 of the Office Action, the Examiner agrees that the reference recites outer diameters of 10 mm for the pipe and 30-100 mm for the cylinder.

The Examiner states that EP '469 is silent on the OD between 10 and 30 mm. Applicants respectfully submit that this because, in the case of the cylinder embodiment, which has a plurality of holes, there is no suggestion that the OD can be less than 30 mm.

Given the Examiner's statements, that the reference is silent on a cylinder OD between 10 and 30 mm, and that the reference specifically recites a cylinder OD of 30-100 mm, it is uncertain why the Examiner takes the position that the reference suggests the membrane structure of the present invention in which the outer diameter of the ceramic monolith is 20-25 mm.

The Examiner says that the reference does not state that the cylinder OD cannot be less than 30 mm. However, the question is whether or not the reference suggests a cylinder OD within the presently claimed range of 20-25 mm. The fact that the reference does not state that the cylinder OD cannot be less than 30 mm certainly does not constitute a suggestion of a cylinder OD of 20-25 mm.

A reference is only good for what it clearly discloses or suggests, and it is improper to modify the structure of the reference to a structure which the reference does not suggest. In re Randol, 165 USPQ 586. Furthermore, in order to establish a *prima facie* case of obviousness, the Examiner must

identify a suggestion or motivation to modify the teachings of the cited reference to achieve the claimed invention. In re Kotzab, 55 USPQ2d 1313. Applicants respectfully submit that such a *prima facie* case of obviousness has not been established.

That is, the EP '469 reference specifies certain dimensions for the structure, and there is absolutely no suggestion in the reference which would lead the art-skilled to modify the reference structure to one which has dimensions outside those which are specified by the reference. In fact, quite to the contrary, the specified dimensions in the reference (cylinder OD of 30-100 mm) teaches away from the present invention in which the ceramic monolith has an OD of 20-25 mm.

The Examiner also states that the reference makes only approximate dimensions, referring to the word "about" for the diameter of the pipe, as in claim 16.

Initially in this regard, Applicants are uncertain of the Examiner's reference to claim 16. EP '469 contains only claims 1-9. The present application includes claim 16, but there is no specific reference to "about" in claim 16.

The term "about" is used at page 3, lines 3-7 of the reference, reciting "about 10 mm" for the outside diameter of the pipe, but this certainly does not suggest reducing the minimum outside diameter of 30 mm for the cylinder to the extent of a 5 mm reduction, which would be necessary in order to reach the maximum outer diameter specifically recited in claims 16 and 20 of the present application, i.e. 25 mm.

The Examiner states that one of ordinary skill in the art would look at all of the overlapping dimensions the reference teaches. It is uncertain what overlapping dimensions the reference teaches. The dimension of "about 10 mm" for the pipe certainly does not overlap the dimension of 30-100 mm for the cylinder. Clarification is requested as to what overlapping dimension are taught by the reference.

In responding to Applicants' argument of superior performance, the Examiner states that no separation factor is provided by the data on page 10 of the present specification.

However, this data relates to an example for water separation from a water/isopropanol mixture, and there is no measurable water in the permeate.

Contrary to the position taken by the Examiner, the data on page 10 does establish that the four tube arrangement of the present invention is superior in performance and cost, giving lower water flux and much lower cost.

In the EP '469 reference, the test samples contain mixtures of water and other alcohols, and there is water (albeit a very low amount), in the permeate.

Applicants take the position that the results set forth in the present specification do establish superior performance for the present invention.

Thus, Applicants submit that EP '469 does not establish a presumption of obviousness, and furthermore, even if such a presumption has been established, it would be overcome by this showing of superior results.

Accordingly, Applicants respectfully submit that the rejection based on this reference should be withdrawn.

The rejection of claim 24 under 35 U.S.C. §103(a) as being unpatentable over EP '469 in view of WO 93/19840, as well as the rejection of claims 25 and 26 under 35 U.S.C. §103(a) as being unpatentable over EP '469 in view of WO 97/18886, are respectfully traversed.

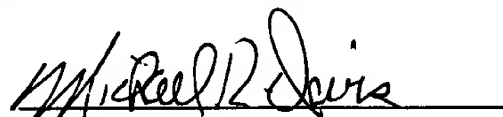
Both of these rejections relate to features set forth in dependent claims, and since the claims from which they depend are directed to subject matter which is patentable over EP '469 for the reasons set forth above, Applicants take the position that even if the secondary references were combined with EP '469, the result of such a combination would still not suggest the subject matter of claims 24-26.

Therefore, in view of the foregoing remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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